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DATE: 10/12/18
REVISION:

PROJECT NUMBER:
FOL-1133

SHEET NUMBER:
M3

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Factory Installed Smoke Detector Specification Sheet

For Factory Installed smoke detectors on 2-26 ton Commercial Rooftop Units
APPLICABLE UNITS: 4850FC, PM, PG 03-28
4850TC, 04-30, 4850HC, 04-28,
0470CO, 04-24, 5050C, 04-12
4850HE, 50HEC, 003-006
4850SL, TM, TF, 004-014
50HQ, TFO, 004-012

GENERAL DATA
Type: TelAir SuperDuct, 4-wire Photoelectric Sensing detector and control module
The Carrier factory installed smoke detector system comprises a four-wire controller and one or two sensors (TelAir Air and/or Supply Air). Its primary function is to shut down the rooftop unit in order to prevent smoke from circulating throughout the building. It is not to be used as a life saving device. Factory installed smoke detectors require no additional sampling tubes to be field installed.

SYSTEM DESCRIPTION
Controller: The controller includes a controller housing, a printed circuit board, and an easily removable clear plastic cover for access to the multiple terminal connections and relay contacts for connections to fire alarm system, HVAC controls, and other auxiliary functions. A remote test/reset alarm station can be connected to the controller.

Detectors: The detector includes a plastic housing, a printed circuit board, a clear plastic cover, an exhaust tube, and a sampling tube. The exhaust tube and sampling tube are attached during factory installation. The sampling tube varies in length depending on the size of the rooftop unit. The clear plastic cover permits visual inspection without having to disassemble the sensor. The cover fits on a raised chamber around the sensing electronics.

For installations using two detectors, the controller does not differentiate which detector signals an alarm or trouble condition. A rapid change in environmental conditions, such as smoke, causes the sensor to signal an alarm state but heat and debris accumulated over time does not. When the sensor's ability to compensate for environmental changes has reached its limit (50% duty), the sensor signals a trouble condition. An air introduced to the duct smoke detector's sensing chamber through a sampling tube that extends into the HVAC duct and is directed back into the ventilation system through an exhaust tube. The difference in air pressure between the two tubes pulls the sampled air through the sensing chamber. When a sufficient amount of smoke is detected in the sensing chamber, the sensor signals an alarm state and the controller automatically takes the appropriate action to shut down the unit via the factory installed wiring connections. Additional functions such as integration with a Building Alarm System, addressable fans and blowers, notify the fire alarm control panel, etc. require field wiring and configuration.

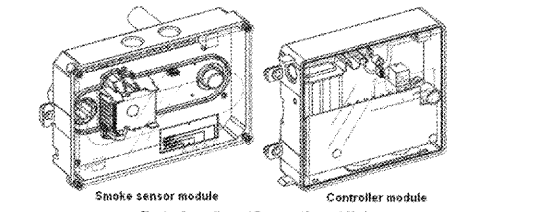


Fig. 1 - Controller and Detector (Sensor) Modules

GUIDE SPECIFICATIONS

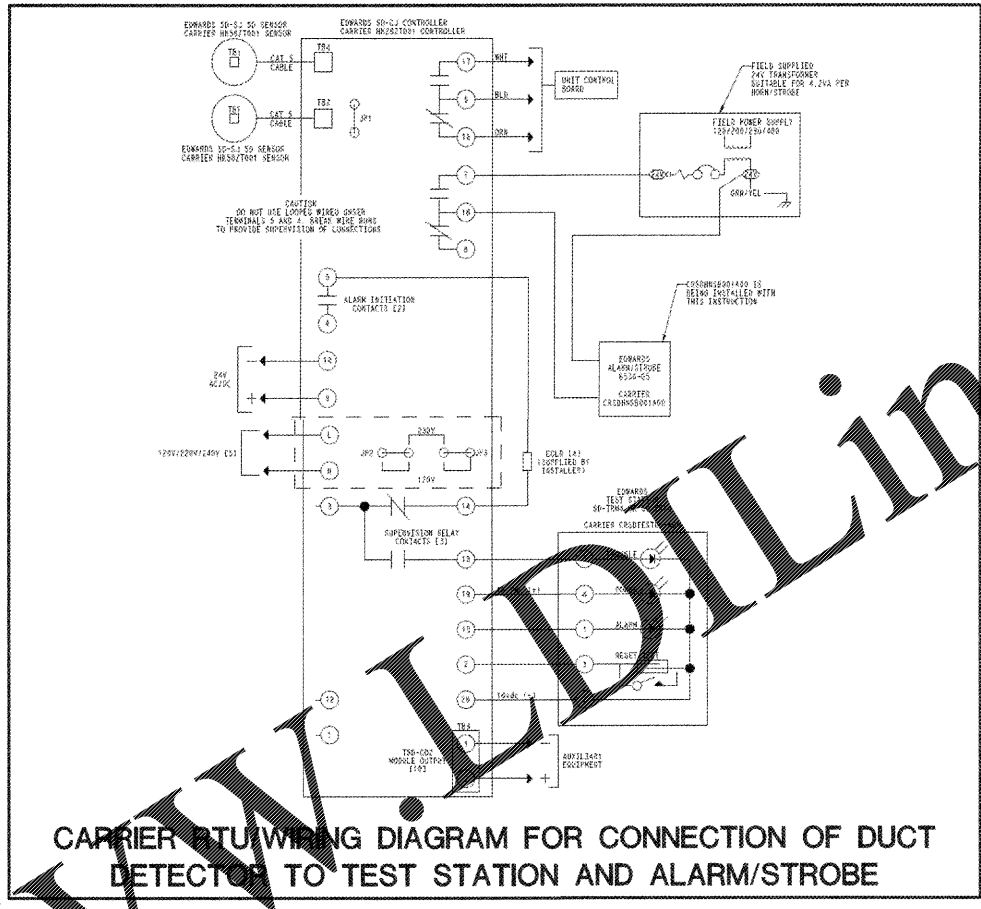
System Specifications:
• System Type: Separate controller and detector modules
• Four-Wire Controller and Detector
• Photoelectric Sensing
• Environmental compensation with differential sensing for reliable, stable, and dust-free sensitivity
• Operating environment: Temperature: -20° to 158°F (-29° to 70° C)
Humidity: 10% to 93% RH, non-condensing
• Magnet-actuated test/reset sensor switches
• Tool-less connector terminal access
• Reversed momentary switches for testing and resetting the detector

Table 1 - Controller Terminal Connections

| Terminal Number | Name |
|-----------------|--------------------|
| 1 | ALX 1 (+) |
| 2 | Power |
| 3 | SUPPLY Contact COM |
| 4 | Alarm Contact COM |
| 5 | Alarm Contact NO |
| 6 | ALX 2 Contact NO |
| 7 | ALX 2 Contact NO |
| 8 | ALX 2 Contact NO |
| 9 | 24V AC/DC (+) |
| 10 | 24V AC/DC (+) |
| 11 | Not Used |
| 12 | Multi-Substation |
| 13 | SUPPLY Contact NO |
| 14 | SUPPLY Contact NC |
| 15 | REM Alarm LED Out |
| 16 | ALX 1 Contact NC |
| 17 | ALX 1 Contact NC |
| 18 | ALX 2 Contact COM |
| 19 | 19 VDC Contact (+) |
| 20 | 19 VDC Contact (+) |
| TR5-1 | Not Used |
| TR5-2 | Not Used |
| N | AC Neutral |
| L | AC Line |

Controller specifications:
Controller shall include:
• One set of normally open alarm initiation contacts for connection to an existing device circuit on a fire alarm control panel.
• Two Form C auxiliary alarm relays for interface with rooftop unit or other equipment.
• One Form C supervisory (trouble) relay to control the operation of the Trouble LED on a remote test/reset station.
• Capable of direct connection to two individual detector modules.
• Can be wired to up to 14 other duct smoke detectors for multiple fan shutdown applications.

Detector specifications:
Sensor:
• Smoke detection method: Photoelectric
• Air velocity (min-max): 100 - 4,000 ft/min
• Pressure differential (min-max): 0.005 - 1.00 in
• Sensitivity: 0.87 to 2.48 %accuracy
• Wire size: 14 to 22 AWG
• Pinned time: 2 second maximum
• Power up time: 6 seconds max
• Alarm test response time: 5 to 7 seconds
• LED Indicators: Red (Alarm)
Yellow (Trouble)
Yellow (Dirty)
Green (Power)



CARRIER WIRING DIAGRAM FOR CONNECTION OF DUCT DETECTOR TO TEST STATION AND ALARM/STROBE

CRSDTEST001A00 REMOTE TEST/RESET STATION SD-TRM4 FOR SMOKE DETECTORS COMMERCIAL ROOFTOP UNIT 3-27.5 TONS

Installation Instructions

IMPORTANT: Read these instructions completely before attempting to install the necessary Remote Magnet Test/Reset Station.

SAFETY CONSIDERATIONS
Installation and servicing of air-conditioning equipment can be hazardous due to system pressure and electrical components. Only trained and qualified personnel should install, repair, or service this equipment.

Untrained personnel can perform basic maintenance functions such as cleaning and replacing air filters. All other operations must be performed by trained service personnel. When working on air conditioning equipment, observe precautions in the literature, on tags, and on labels attached to or slipped with the unit and other safety precautions that may apply.

Follow all safety codes. Wear safety glasses, protective clothing, and work gloves. The cleaning cloth for treating operations. Have fire extinguisher available. Read these instructions thoroughly and follow all warnings or cautions included in literature and attached to the unit. Consult local building codes, the current editions of the National Electrical Code (NEC) NFPA 70, or Canada refer to the current editions of the Canadian electrical Code CSA C22.1.

Recognize safety information. This is the safety-alert symbol. When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury. Understand these signal words: DANGER, WARNING, and CAUTION. These words are used with the safety-alert symbols. DANGER identifies the most serious hazards which will result in serious personal injury or death. WARNING identifies hazards which could result in personal injury or death. CAUTION is used to identify unsafe practices which may result in minor personal injury or product and property damage. NOTE in these instructions is used to call attention to important information, such as installation, reliability, or operation.

WARNING
Electrical shock hazard. Failure to follow this warning could result in personal injury or death.

Before installing or servicing system, always turn off main power to system and lock/tag lockout tag. There may be more than one disconnect switch. Turn off accessory heater power switch if applicable.

CAUTION
CUT HAZARD
Failure to follow this caution may result in personal injury.

Sharp metal parts may have sharp edges or burrs. Use care and wear appropriate clothing.

WARNING
PERSONAL INJURY - ENVIRONMENTAL HAZARD
Failure to relieve system pressure could result in personal injury and/or death.

1. Relieve pressure and recover refrigerant before performing any maintenance or repair work on the system. Use all safety precautions, including safety glasses.
2. Follow applicable local, state, and federal regulations regarding the use of refrigerant. Recover, recycle, or dispose of refrigerant in accordance with applicable laws and regulations.

GENERAL

The SD-TRM4 Remote Test/Reset Station is used with the SuperDuct™ four-wire duct smoke detector. Each remote test/reset station provides a green LED to indicate power and a red LED to indicate alarm, and a yellow LED to indicate trouble and detector dirty levels. The SD-TRM4 requires a magnet to activate test and reset functions. (See Fig. 1.)

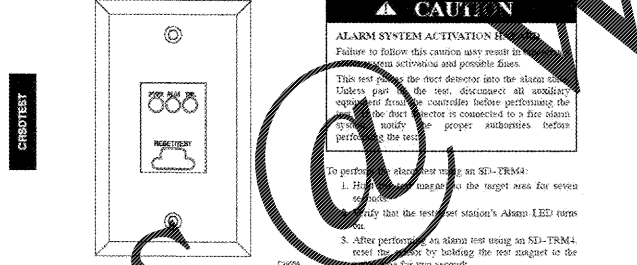


Fig. 2 - SD-TRM4 Installation Diagram

INSTALLATION

Mount the remote test/reset station on a single gang box as shown in Fig. 2.

REQUIREMENTS

| |
|--|
| North American 1-gang box Standard 4-in square box, 1-1/2-in deep with 1-gang cover |
| Alarm (red) Trouble (yellow) Power (green) Clear (blue) |
| LED Type |
| Wire Size |
| Resistance Per Wire |
| Current Requirements |
| Compatible Detectors |
| Operating Environment |
| Temperature |
| Humidity |
| Storage Temperature |

WIRING
Wire the remote test/reset station to the four-wire controller as shown in Fig. 3.

REMOTE TEST/RESET STATION TESTS

Test reset station alarm test using the SuperDuct™ Four-Wire Smoke Detector.
The test/reset station alarm test checks the detector's ability to initiate an alarm. The alarm state is indicated by a red LED on the test/reset station.

CAUTION
ALARM SYSTEM ACTIVATION HAZARD
Failure to follow this caution may result in personal injury, property damage, and possible fines.

This test puts the duct detector into the alarm state. Unless part of the test, disconnect all auxiliary equipment from the detector to avoid performing the test with the detector in a state that could result in improper operation before performing the test.

To perform an alarm test using an SD-TRM4:
1. Hold the magnet over the magnet area for seven seconds.
2. Verify that the test/reset station's Alarm LED turns on.

3. After performing an alarm test using an SD-TRM4, reset the detector by holding the test magnet to the magnet area for two seconds.
4. Verify that the test/reset station's Alarm LED turns off.

INSTALLATION
Mount the remote test/reset station on a single gang box as shown in Fig. 2.



Fig. 3 - Wiring Diagram

EDWARDS SIGNALING PRODUCTS Installation Instructions for the 6536-G5 Horn/Strobe

Description
The 6536-G5 is an audible/visual signal UL Listed for general purpose signaling applications.

Installation
A qualified electrician familiar with National Electrical Code and local code requirements must install this product. Failure to follow the safety precautions in this manual may result in product or property damage, severe personal injury or death.

WARNING
To reduce the risk of shock, do not remove lens or tamper with unit when the circuit is energized. Do not connect AC power until installation is complete.

WARNING
To reduce the risk of shock, do not remove lens or tamper with unit when the circuit is energized. Disconnect power and allow five (5) minutes for stored energy to dissipate before starting work or disassembly. High energy could be stored in the strobe circuit once it is energized.

Perform regularly scheduled testing at least once a year or more often as dictated by local authorities having jurisdiction.

Table 1. Specifications

| Operating Voltage | 24V 50/60 Hz | 24V DC |
|-------------------|--------------|--------|
| Alarm Current | 175 mA | 125 mA |

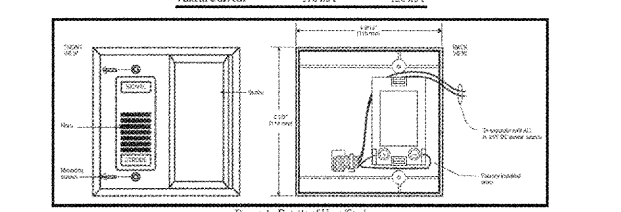


Fig. 1. Details of Horn/Strobe

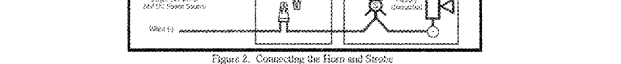


Fig. 2. Connecting the Horn and Strobe

DUCT DETECTOR - TEST STATION - ALARM/STROBE